

A METHOD OF SHARING INFORMATION AMONG A PLURALITY OF STATIONS
IN A FRAME-BASED COMMUNICATIONS NETWORK

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ABSTRACT OF THE DISCLOSURE

A method of sharing information among a plurality of stations on a communications network, each of the plurality of stations being capable of transmitting and receiving frames over the communications network between any one station and all other stations. A group of agreed-upon flags is established, each flag of which may be set or not set by a station of the communications network at any given time. Periodic timing is provided in each station that expires after an interval, the interval being common among all the stations and being at least long enough to allow every station on the communications network to transmit a plurality of frames. A common frame format is defined providing the capability of specifying a current transmit flag set, an old transmit flag set, and a current receive flag set. Each station maintains: (1) a current transmit state set indicating by the agreed-upon flags the current capabilities and status flags for that station, (2) a recent timer expiration set indicating by the agreed-upon flags the capabilities and announced status flags for that station as they were at a most recent expiration of the periodic timing, (3) a previous timer expiration set indicating by the agreed-upon flags the capabilities and status for that station as they were at a penultimate expiration of the periodic timing, (4) a current transmit received set indicating by the agreed-upon flags a logical union of all copies of the current transmit flag set received in frames from other stations, and (5) a previous received set indicating by the agreed-upon flags the current transmit received set at the most recent expiration of its timer. A control frame is generated by a transmitting station wherein: (1) the current transmit flag set is set to a logical union of the current transmit state set and the recent timer

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expiration set, (2) the current receive flag set is set to a
logical union of the current transmit received set and the
5 previous received set, and (3) the old transmit flag set is set
to the value of the previous timer expiration set. The control
frame is generated and transmitted by the transmitting station
to all other stations on the communications network each time a
flag in any of the logical unions is set or cleared and upon the
10 expiration of the timer in the transmitting station.

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